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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,471	10/07/2005	Shinji Kishimoto	529.45475X00	2178

20457 7590 03/30/2010

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EXAMINER	
GUPTA, VANI	
ART UNIT	**PAPER NUMBER**
3768	
MAIL DATE	**DELIVERY MODE**
03/30/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/552,471	KISHIMOTO, SHINJI	
	Examiner	Art Unit	
	VANI GUPTA	3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,6,8,12 and 16-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,6,8,12 and 16-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 1, 2010 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. ***Claims 1, 2, 6, 8, 9, 12, and 16 – 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burke et al. (US 5,517,994) in view of Yoichi (JP 5000138) in view of Suzuki et al. (US 6,602,196 B2).***

Regarding claims 1, 2, 6, 8, 9, 12, and 16 – 24, Burke et al. discloses an ultrasonic diagnostic system (fig. 1) that is capable of performing self diagnostic tests on the system processing and control channels coupled to the transducer elements (#30) of an ultrasonic probe (#10; col. 7, line 12), and the ultrasonic probe, itself.

As described above, Burke's system comprises a probe that transmits and receives ultrasonic waves to and/or from a test subject (#12 and #38). The system also comprises a

diagnostic processor (#20), which is coupled to a number of subsystems, including the ultrasound probe. There also is a beamformer (#14) and an image-and-Doppler processor (#16) (col. 2, lines 45 – 50). The image-and-Doppler processor processes digital echo signals to form an image or to make a diagnostic measurement such as the velocity of blood flow in the subject's body. The resultant image or measurement is displayed on a display (#18) (col. 2, lines 15 – 44; and col. 3, lines 1 – 16).

With further respect to claims 1, 8, 9 and 12, Burke teaches also teaches a judging section: the diagnostic processor operates under the control of, or in conjunction with, a central system controller (not shown). This allows the diagnostic processor to monitor the probe-air interface by performing "self diagnostic tests," and adjust operating characteristic of the system electronics accordingly (for example, monitoring and adjusting probe temperature) (Abstract; col. 2, line 15 - col. 8, line 12). Burke et al. also explains that performing self-diagnostic tests is automatically" initiated based on a judgment or determination that that probe is idle, or not in use, or "has been left in the air" (col. 3, ll. 5 – 8; col. 4, ll. 24 – 40; and col. 7, ll. 47 – 55). An idle probe is a form of diagnostic image information, because it an indication that image formation has ceased.

Burke et al. explains that the aforementioned self-diagnostic tests are accomplished to foresee "undetectable failures [that] can lead to a degradation in diagnostic performance" of the probe (col. 1, ll. 40 - 47). Furthermore, Burke et al. explains that based on the results of the diagnostic tests, the ultrasound system can adjust operating characteristics to "compensate for a detected out of tolerance conditions," or undetectable failures (Abstract).

As Yoichi also explains, based upon the judgment of whether the probe has been left in the air, the ultrasound system can adjust operating characteristics by "interrupting" drive signals of the probe (para. [0002]). This is helpful in preventing heating and the characteristic degrading (Abstract).

With respect to the control section also reducing the frame rate sufficient for moving image reproduction of the diagnostic image based on whether the judging unit judges that the probe has been left in the air, both Burke and Yoichi describe adjusting or controlling imaging device specifications or parameters such "wave transmission" *(Yoichi, paragraph [0007])*.

Likewise, Suzuki describes a relationship among "sound-ray density" (wave transmission), scan range, and the frame rate *(col. 1, lines 18 – 37; col. 9, line 59 – col. 10, line 40)*. As described in these passages, Suzuki explains that sound-ray density, a parameter of image data, is determined by transmission and reception of acoustic energy (hence, Yoichi's wave transmission). Suzuki continues, explaining that frame rate is inversely related to sound-ray density. Suzuki also explains that if sound-ray density is kept constant, frame rate remains constant as well. It would be prima facie obvious to one of ordinary skill in the art that if wave transmission ceased, and therefore sound rays ceased, frame rate would cease too.

As such, it would be prima facie obvious to combine Burke et al. with Yoichi and Suzuki so that one could ensure, along with the periodic self-diagnostic tests, prevention of degradation of the probe elements so that ultrasound images are obtained under optimal system specifications; by monitoring and controlling of the intensity of the echoes signals (as related to wave transmission), to prevent "heating and characteristic degrading" *(Yoichi: Abstract and paragraph [0002])*.

Regarding Claim 2, Suzuki teaches an ultrasonic imaging apparatus, comprising a B-mode processor and a Doppler processor (***figs. 1 and 2, #10*** *and* ***#12****; col. 6, lines 28 – 32*). A controller (fig. 2, #18) controls the operation of the B-mode processor, Doppler processor (*col. 6, line 65 – col. 7, line 5*), and CFM processor (*col. 7, lines 34 – 40*).

Regarding Claim 6, Suzuki teaches "time-sharing" between the B-mode image processor and Doppler image processor (*col. 8, lines 30 – 42*). One of ordinary skill in the art would be aware that this time-sharing capability further would require switching means between different the different imaging modes.

With respect to claims 16 – 18, Burke et al. explains that his ultrasonic diagnostic apparatus is capable of displaying status messages about its overall performance and the performance of its components (col. 7, lines 25 – 40). Applicant should note that the specific features or attributes of the messages themselves and what they represent do not limit the structure of the present application in such a way that it is novel over the prior art. Furthermore, they are not limiting in such a way that Burke's apparatus is not structurally and functionally incapable of generating the messages. Furthermore, Burke is not limited in any way in reference to the display size, the display color, or other display aspects of the message that may change over time.

Regarding claims 19 – 24, Suzuki teaches a control section that controls sections wherein the ultrasonic diagnostic apparatus includes a judging section that judges, on the basis of brightness information, or Doppler signal information, or CFM image information (as explained in the rejection of Claim 2. See also rejection of claims 1, 2, 6, 8, 9, 12, and 16 – 24 with respect to other aspects of these claims).

Response to Arguments

3. ***Applicant's arguments filed February 1. 2010 have been fully considered but are not persuasive.***

Applicant argues that Burke never discloses or suggests ability for detecting whether the probe has been left in the air or not based diagnostic image information. Examiner respectfully disagrees and directs Applicant to above rejection, wherein it clearly indicated that Burke performs this function based on the fact that an idle probe is a form of diagnostic image information, because it an indication that image formation has ceased. Applicant has not indicated why an idle probe (or an indication that image formation has ceased) would not be a form of diagnostic image information. Additionally, the claims are not very specific with respect to "diagnostic image information" and, as Applicant may be aware, while the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant also argues that Suzuki "does not appear to" suggest an ultrasonic imaging apparatus that includes a B-mode processor, CFM processor, and a Doppler processor; and a controller for control operation of the B-mode processor, CFM processor and a Doppler processor.

Examiner respectfully disagrees and directs Applicant to rejection of Claim 2, where it is clearly indicated that Suzuki suggests these features. Suzuki teaches an ultrasonic imaging apparatus, comprising a B-mode processor and a Doppler processor (***fig. 2, #10*** *and* ***#12****; col. 6, lines 28 – 32*). A controller (fig. 2, #18) controls the operation of the B-mode processor, Doppler processor (*col. 6, line 65 – col. 7, line 5*), and CFM processor (*col. 7, lines 34 – 40*). Examiner

also respectfully points out that Applicant has not indicated why Applicant has determined that Suzuki does not meet features of this claim.

Applicant also argues that Burke, Yoichi, and Suzuki fail to suggest or teach "reducing the frame rate sufficient for moving imaging reproduction of the diagnostic image."

Examiner respectfully disagrees.

Burke and Yoichi describe adjusting or controlling imaging device specifications or parameters such "wave transmission" *(Yoichi, paragraph [0007])*; while Suzuki describes a relationship among "sound-ray density" (wave transmission), scan range, and the frame rate *(col. 1, lines 18 – 37; col. 9, line 59 – col. 10, line 40)*. Suzuki explains that if sound-ray density is kept constant, frame rate remains constant as well. Consequently, if wave transmission ceased, and therefore sound rays ceased, frame rate would cease too. Please see above rejection for more details.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VANI GUPTA whose telephone number is (571)270-5042. The examiner can normally be reached on Monday - Thursday (8:30 am - 6:00 pm; EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/V. G./
Examiner, Art Unit 3768

/Long V Le/
Supervisory Patent Examiner, Art Unit 3768